Clinical Presentation

A 74-year-old woman presented with new, severe pain in the lower thoracic region. She was tender over the region of the thoracolumbar junction, and the pain was worse with standing. She had no particular additional risk factors besides age. Her primary physician ordered magnetic resonance imaging (MRI) after several weeks of analgesic therapy provided little overall improvement.

Imaging Findings

Standard radiographs demonstrated a compression fracture of T11 and a vacuum cleft in the superior aspect of the vertebra (Case Figure 3.1). The MRI again showed the compression fracture and established it as acute with marrow edema. T2 images disclosed a high-signal zone below the superior endplate where the vacuum cleft had been seen on x-ray (Case Figure 3.2). No other fractures were found.

Procedure

The patient underwent a single-level percutaneous vertebroplasty (PV) following the usual consent, intravenous (IV) antibiotics, and IV procedural sedation. Two needles were placed via the transpedicular route with fluoroscopic guidance. Needle tips were in the lower part of the vertebra, away from this vertebral cleft. This was not intentional, but did allow a good example of the fact that clefts and cavities will usually preferentially fill during cement injection (Case Figure 3.3). This occurred in this case as well. Cement migrated into the sub-endplate cleft, and there was poor filling of the inferior part of this vertebra (Case Figure 3.4). The procedure was tolerated well, and the fill pattern was accepted without attempts at additional needle placement or filling.
Case Figure 3.1. (A) Lateral radiograph showing compression fracture of T11 with an air-filled cavity below the superior endplate (black arrows). (B) The same cavity (black arrows) on an anteroposterior radiograph.

Case Figure 3.2. A T2-weighted sagittal MRI shows a sub-endplate cavity (black arrow) exhibiting high signal. This indicates that the cavity is fluid filled.